SOME SERIOUS EYE CONDITIONS THE RESULT OF INTRA-NASAL AND NASAL ACCESSORY SINUS DISEASE.*

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In an address delivered before this academy in September, 1907, on a similar topic, I said: "While the subject of the relation of the pathological condition of the nose and accessory sinuses to the visual apparatus, was by no means unfamiliar," the last word pertaining to symptomatology and diagnosis had not been said, and in the study of this region there is still "much timber, tall and uncut" —much anatomical and physiological work to do, and a still greater field for study in the pathological realm. Laurels and gratitude await the patient and persevering investigations of our members as to the etiology, diagnosis and treatment of diseases of the nasal accessory sinuses and the serious ocular disturbances often due to their disturbed functions as the result of pathological conditions or mechanical obstructions. Prior to 1906 only one paper on this subject appears in the transactions of this academy. Since then more than twenty papers with discussions have been read and published by our members.

Wonderful strides have been made, much good work has been done, much of the tall timber of ignorance and uncertainty has been cut, and, as the result of the closer relations of the oculist, rhinologist and internist, many hitherto unsolved problems of serious ocular conditions due to nasal conditions have been solved, and to many vision and comfort of body has been restored. The way has been well blazed, and to-day is being well paved for a greater work, for the last word has not been said as to the symptomatology, etiology, diagnosis and treatment, and, while many of our number have won "laurels and gratitude," there is yet much to be done, and the palm of victory that goes with success awaits the patient and persevering scientific oculist and rhinologist.

In our investigations we must remember that in this day of specialism there is danger of our becoming cyclopic, with only one eye that sees only the oto-rhinological part of the body, overlooking the possibility of danger that may result to the ocular apparatus to which it is so intimately related. We still find that each case is a law unto itself, the symptoms often vary as much as do the size, shape and positions of the sinuses.

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Experience and investigation of the etiology of many of the serious ocular conditions frequently met with in our daily routine of clinical work brings increasing and unmistakable evidence of the truth that no one organ of the human body, when diseased, can be successfully treated to the exclusion of other organs and parts of that body. Often we find an intra-nasal condition, to all appearances presenting more than sufficient evidence for the cause of the serious intra-ocular trouble for which the patient consulted us, and we are disappointed and chagrined to find that when this is entirely removed the ocular condition is unimproved. On going deeper into other possible etiologic factors, we find a toxemia to be the cause of the ocular disease. This is more frequently of an auto-intoxication nature and due to faulty metabolism, beginning primarily in the gastro-intestinal tract; but it must not be forgotten that we may have serious ocular conditions resulting from an auto-intoxication in which the alimentary canal has no part whatsoever. For this reason, if for no other, the oculist must needs have the assistance of not only the rhinologist but also of the internist, radiographer and laboratory expert.

In other words, the greatest accuracy and success oftentimes can be gained only by the working together of several specialists in the science of medicine as one man. As yet we know of very few pathognomonic etiological factors in the production of serious changes in the fundus oculi which results in either blindness or greatly impaired vision, and our diagnosis is often made by exclusion of other possible causes of the condition, and our treatment directed to attacking vigorously that which presents the greatest evidence of being the predominant etiologic factor.

This is not the time, place nor occasion for me to consume valuable time by reporting individual cases illustrating some of the serious eye conditions which I have met, due to intra-nasal and nasal accessory sinus disease. A body of men, such as this is, whose membership contains the majority of the leading oculists and rhinologists of America, does not expect in minute detail clinical histories in the presentation of a topic for discussion at its annual meeting; hence, I omit this and present briefly the lessons I have learned from my own individual work, and submit them for your consideration and discussion.

I have had five cases of neuro-retinitis, nine of papillitis, three of "choked disc," one atrophy of the optic nerve, and five exophthalmus or posterior ethmoid cells; often both these were unsolved. In these cases the right eye was most frequently involved; and nearly all of them were complicated by a systemic condition, an autotoxemia, a low form of septicemia, neurasthenia or rheumatism. I refer in this report only to those in whom the diagnosis of the intra-nasal and accessory sinus condition was verified by subsequent operation. In twenty of the cases the sphenoid sinus and posterior ethmoid cell walls were extremely thin and of large size; in the remaining four cases the very opposite condition was found. The best explanation of this I think, is that given by Frank Brawley, who says: "Involvement of the eye is more likely to occur from infection in thin-walled sinuses or where dehiscences occur in the bony walls, producing direct contact between the lining membrane of the sinus and the orbital periosteum, or even the sheath of the optic nerve. Adhesions may occur between the orbital periosteum or the optic nerve-sheath and the bony sinus walls, secondary to inflammation of the latter, and these adhesions may become vascularized, offering a direct route for infection of the ocular structures."

I have frequently observed in cases where there was a difference in power of accommodation in the two eyes, that this was relieved by getting rid of a middle turbinate which was hypertrophied, or from any cause producing pressure in the nose, either against the septum or antral wall. In those cases with very narrow "nasal attics," if free ventilation and drainage through the infundibulum is due to an obstructing middle turbinate, this should be removed, even though it presents no pathological changes. Its long-continued pressure in this region—the vicious circle—will eventually lead to pain, pus-formation and ocular disturbance as the result of the negative pressure it causes within the accessory sinus. These points have been emphasized by Pynchon, Ballenger and myself in this academy on other occasions and need not be dwelt upon at length again.

In five cases of amblyopia in the right eye, where the vision varied from 20/180 to 20/200, which could not be improved by any lens, three of them had pansinusitis of the right side, but there were no intraocular or fundus changes except slight edema of the nerve head. In these the radical Killian operation was performed and all the accessory sinuses on the right side were found to be filled with pus and soft granulations—the sphenoid sinus was very large, the walls thin and necrotic. Immediate relief of the local and systemic (septic) symptoms was the result of the operation, but there was no improvement in vision in either case for several months, when there was gradual and permanent (no return over three years) restoration of vision. These cases, as all those I operate for extensive intra-nasal and accessory sinus disease, were given small doses of iodin in daily increasing doses, and reconstructive tonics for from three to six months, beginning the third or fourth day after the operation.

The other two cases presented no evidence of any pathological condition either in the nose or accessory cavities, but the upper portion of the nose (the attic) was very narrow, and the small middle turbinate pressed tightly against the septum and antral wall, completely obstructing both ventilation and drainage through the infundibulum. Besides the loss of vision, which was accidentally discovered in the right eye by the patient, and in the other by the oculist, both patients complained of nothing except a morning headache, which persisted from the time he got out of bed till about ten o'clock, when it began to wear off. He could tell when relief was near because he always had an attack of sneezing a short time before. At the time of operation I had difficulty in cocainizing the parts with the finest cotton-covered probe because of the extreme narrowness of the nasal attic, and even after the soft tissues were retracted by adrenalin the space between the turbinate and septum, as well as the antral or outer wall of the nose was so narrow that it was impossible to thoroughly apply sufficient of the local anesthetic to render the operation bearable.

In neither of these (extreme cases) and in many others of a similar nature, in which I have removed the middle turbinate, did I find evidence of any pathological change which had taken place in either the turbinate body or accessory sinuses. The pain was probably due to negative pressure caused by obstructed ventilation and drainage of the frontal and sphenoid sinuses as well as the ethmoid cells; the amblyopia was due to toxemia, the result of congestion or venous stasis from the same cause. The relief of the morning headache was within a week following the removal of the middle turbinates, the restoration of vision within six weeks.

Attention is called to these five cases because they represent the extreme type and illustrate forcefully some of the very serious conditions of the visual apparatus resulting from intra-nasal disease and abnormalities. I have met with several cases of blepharospasm, dacryocystitis, pain in the eye with varying degrees of photophobia and epiphora, which were the result of nasal synechia following the use of the cautery or from hypertrophied or polypoid degenerated turbinates.

Within the past three years I have been especially impressed with how little intra-nasal surgery is necessary to relieve the most complicated and serious conditions in which the visual apparatus presents the most alarming symptoms, and I am finding fewer cases that require the radical external operation even for the relief of suppurative pan-sinusitis. In this respect the radiographer has been of inestimable help to us, in that he is able to demonstrate to us the abnormalities, peculiarities and oftentimes the pathological indications that each case may present; thus preventing our groping in the dark for the opening into the venous nasal accessory sinuses. The pendulum has swung from the extremes of conservatism and radicalism, and these extremes are now uniting into what might appropriately be termed conservative radicalism.

The special field in which the rhinologist labors, when any surgical intervention is indicated in order to relieve pain, maintain health or to save life, differs from the surgery in any other part of the body, in that ventilation is as necessary as drainage. The highest aim of the rhinologist should be to save as much of the active functioning nasal mucosa as possible and not destroy it. I have contended for years and now repeat the contention with emphasis that the "offshoot" of the ethmoid bone, known as the middle turbinate, is more frequently at fault in the production of intra-nasal and nasal accessory sinus disease than all other causes combined, because of its proximity to the infundibulum and the so-called vicious circle of the nose—when it is enlarged or adherent it blocks both ventilation and drainage of all the sinuses, and its thorough removal with a minimum amount of traumatism and after-treatment in the form of vapors, sprays, douches, ointment and powders is productive of more good than all other intra-nasal operations or treatment.

In conclusion, no two specialties or specialists ought to be more intimately related than the oculist and rhinologist, and these two far more frequently than is at present admitted need the co-operation of the internist, radiographer and laboratory expert.

The work of Brawley, Ziegler, Pynchon, Ballenger and de Schweinitz in the American rhinological and ophthalmogical field, who have gone so minutely and accurately into the investigation and elucidation of this subject, deserve not only special mention from me but the thanks of this academy.

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